CPR and ECC

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CPR

Airway

- Place an endotracheal tube in the trachea and secure it in place with a bandage tie
- If an endotracheal tube has already been placed check that it is in the trachea and that it is not obstructed

Breathing

- Attach a suitable breathing system or Ambu bag to the ET tube and common gas outlet of the anaesthetic machine
- Turn on the oxygen flowmeter.
    - If using a breathing system set a flow appropriate to the system & the patient
    - If using the Ambu bag set a flow of approx. 200 ml/kg/min
- Provide **10 breaths per minute**

Chest Compressions

- Place animal in lateral recumbency
- Provide **120 compressions per minute**
- Use both hands with fingers interlaced (see diagram below)
- Where to compress?
    - Small dogs (<15kg) & sight hounds compress directly over the heart
    - Medium to large dogs (>15kg) compress widest part of thorax
- Aim for 1:1 compression:relaxation and allow full chest recoil

https://www.youtube.com/watch?v=YNQLsRcO5Gk

https://www.youtube.com/watch?v=KqClwoUrgZA

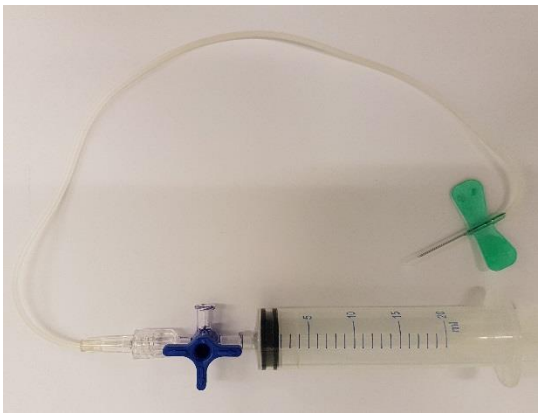
Thoracocentesis

Indications:

- When ventilation is being compromised and an accumulation of fluid or air within the pleural space must be ruled out.
- Identified fluid or air accumulating within the pleural space is causing increases in respiratory rate or effect and time is of the essence to start removing this immediately.
- When a chest tube is not in place and clinical signs indicate recurrence of pulmonary compromise and for various reasons (financial, logistic, etc) it is elected not to now place a chest tube.

Equipment List:

- Butterfly catheter (winged infusion set) or appropriately sized hypodermic needle
- 3-way stopcock (ideally)
- 20-50 ml syringe
- T-port
- Dish, bowl or tubes for sample collection (optional)



Procedure:

Provide flow-by oxygen to help stabilise the patients. Thoracocentesis may be performed in whatever position the patient is most comfortable (sternal, sitting, standing or lateral recumbency). Clip and quickly **prep the skin at 7th-9th intercostal space** (ICS) on both sides, in a stripe following the curve of the rib from spine to sternum. Using the 7-9th ICS avoids the heart (3-5th ICS) or the liver (caudal to 9th ICS). Use a 20 or 25 gauge butterfly catheter or appropriately sized needle. Use a 3-way stopcock between the syringe and catheter tubing so that contents of the syringe can be expelled without having to disconnect. At no point during the procedure should the 3 way stopcock be open to both the patient and the environment. Insert the needle perpendicularly along the front edge of a rib (as the blood vessels and nerves lie caudal to the rib). As soon as the needle has reached the subcutaneous tissue, 1-2 ml of vacuum is applied to the plunger and is not released until the needle has entered the pleural cavity. Do not apply vacuum, release, advance and test again – you want the vacuum continuously applied. As soon as the needle penetrates the pleural space, the vacuum will be lost as air or fluid enters the needle. This finding should stop you from advancing the needle any farther into the pleural space. Then flatten the angle of the needle so that it is lying almost parallel to the thoracic wall. Make note of the position of the bevel of the needle before insertion to ensure that it is facing into the chest. Suction with a 20-50 ml syringe. Tap bilaterally (unless the patient is known to have unilateral disease). If the patient is sternal, sitting or standing, the thoracocentesis is performed at the junction between the dorsal and middle one-third for air and at the junction middle and ventral one third for fluid.

INTERMITTENT POSITIVE PRESSURE VENTILATION (IPPV)

1. Choose suitable breathing system
2. Attach T-piece to the common gas outlet and patient ET tube
3. Set oxygen flow at 2 L/min
4. Close or partially close APL valve
5. Squeeze bag using gentle hand pressure
    a. Observe patient as you do this. Aim for a modest chest lift, slightly higher than a normal inspiration. If APL valve fully closed, beware of risk of over-inflation of lungs
6. Open APL valve
7. If performing sustained IPPV a rate of 12 -20 breaths/min is suitable for most patients
8. **Do <u>not</u> use the oxygen flush to fill the reservoir bag (this exposes the patient's lungs to very high pressure)**